# Towards Real-World Blind Face Restoration with Generative Facial Prior

## Abstract

Blind face restoration usually relies on facial priors, such as facial geometry prior or reference prior, to restore realistic and faithful details. However, very low-quality inputs cannot offer accurate geometric prior while high-quality references are inaccessible, limiting the applicability in real-world scenarios. In this work, we propose GFP-GAN that leverages rich and diverse priors encapsulated in a pretrained face GAN for blind face restoration. This Generative Facial Prior (GFP) is incorporated into the face restoration process via spatial feature transform layers, which allow our method to achieve a good balance of realness and fidelity. Thanks to the powerful generative facial prior and delicate designs, our GFP-GAN could jointly restore facial details and enhance colors with just a single forward pass, while GAN inversion methods require image-specific optimization at inference. Extensive experiments show that our method achieves superior performance to prior art on both synthetic and real-world datasets.